TOMOSO: SN2ZE260

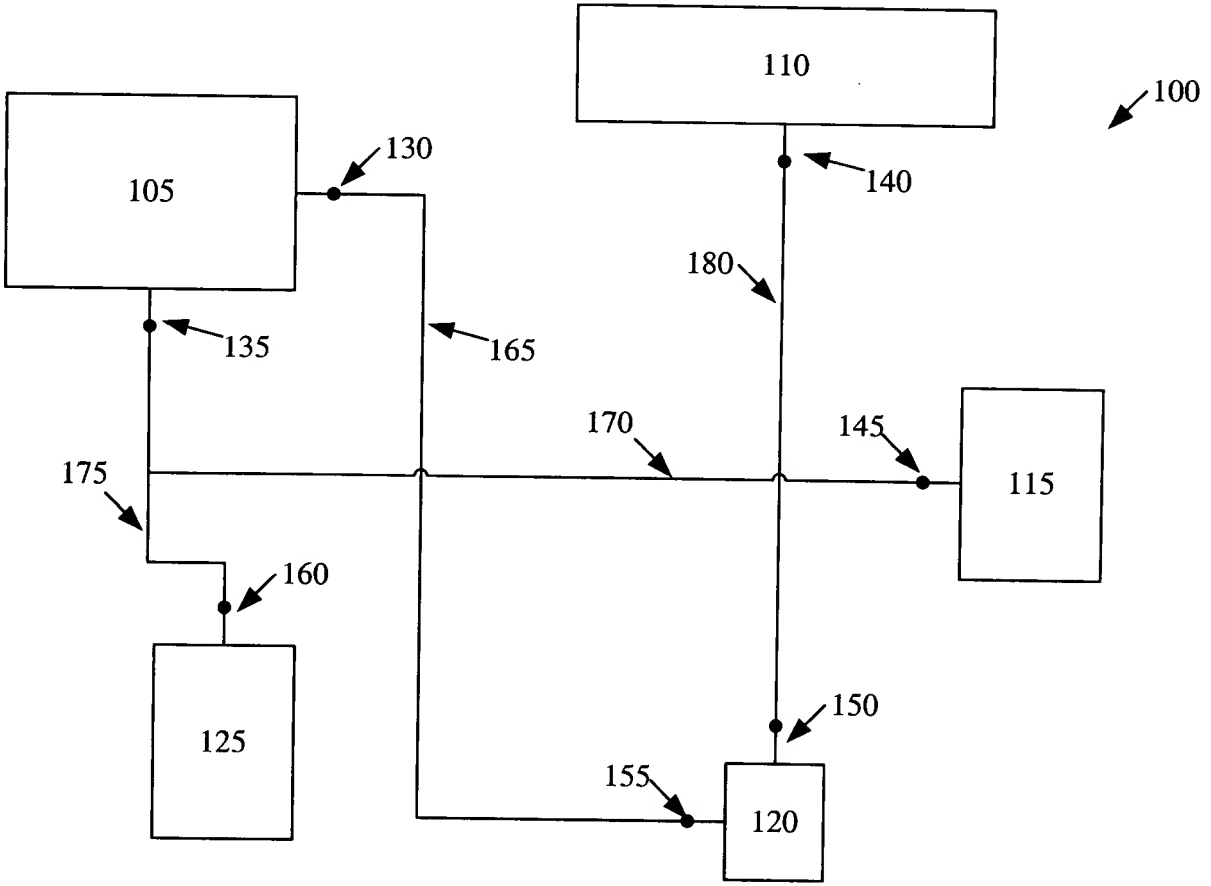

Figure 1

TOMSO: SN2E260

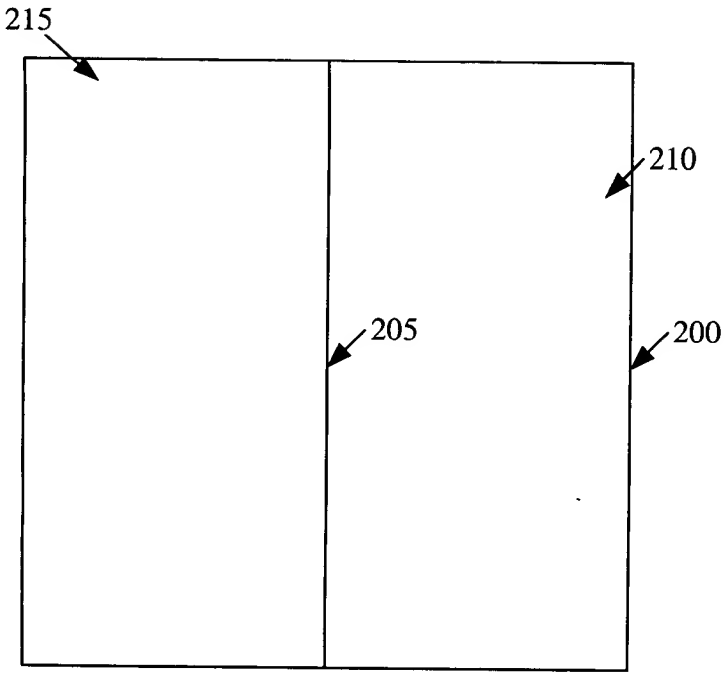

Figure 2

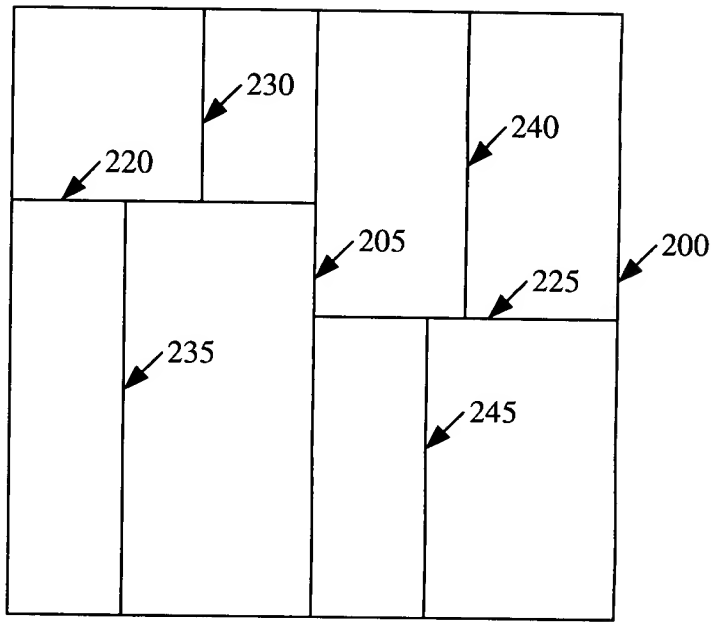

Figure 3

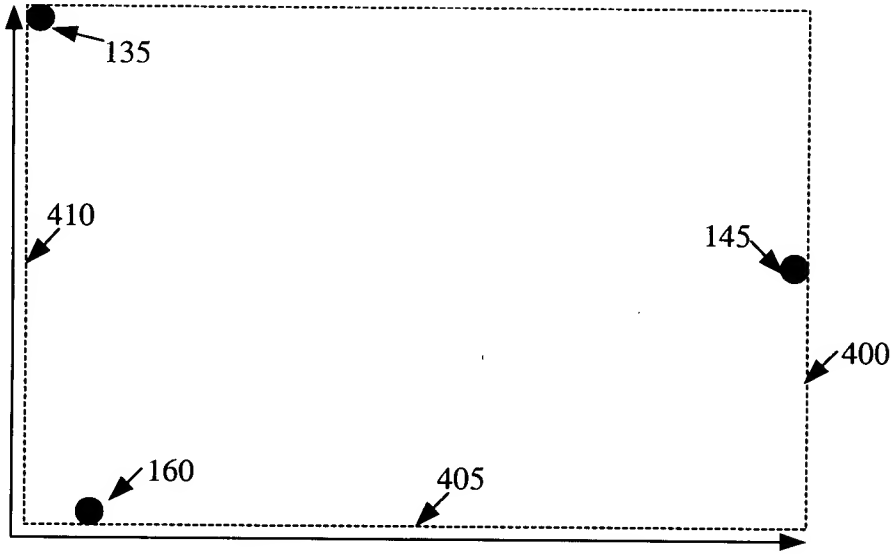

Figure 4

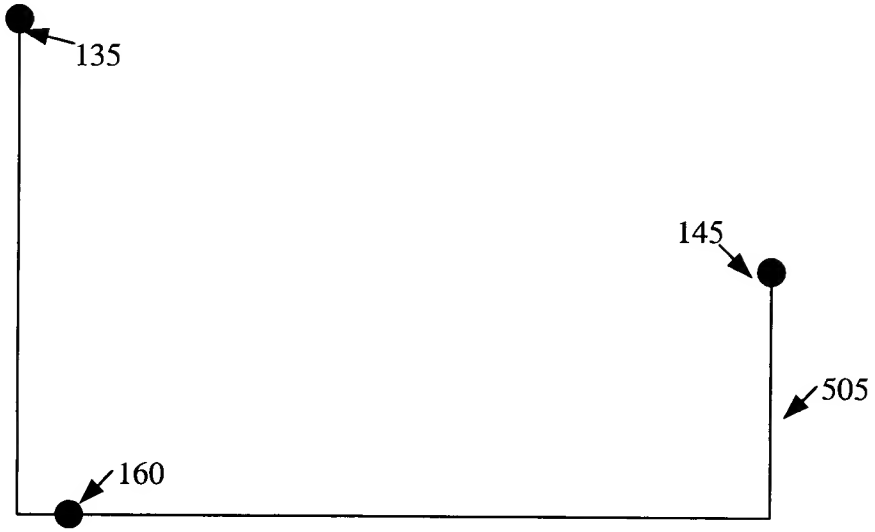

Figure 5

TOMOSO "SH2E260

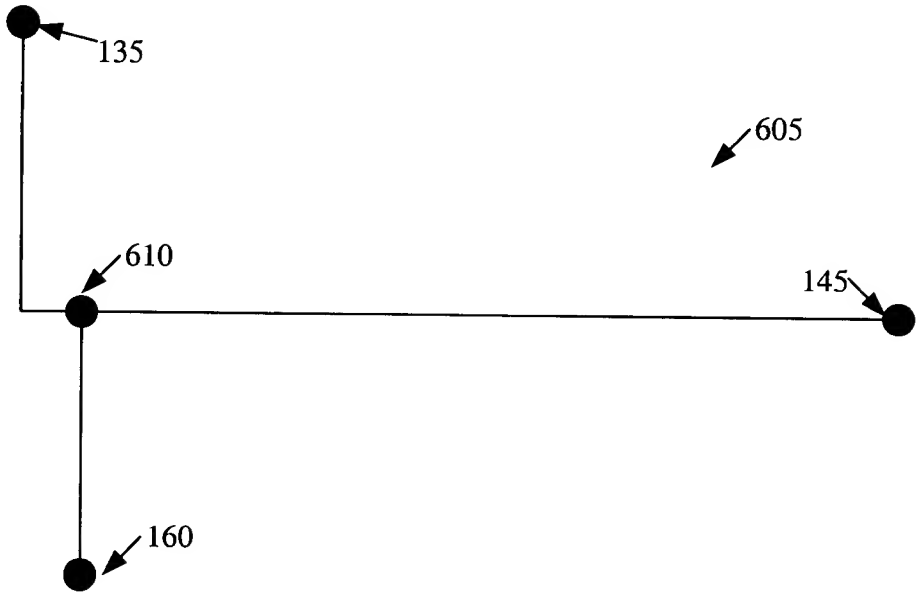

Figure 6

FOR050 "SN2E760

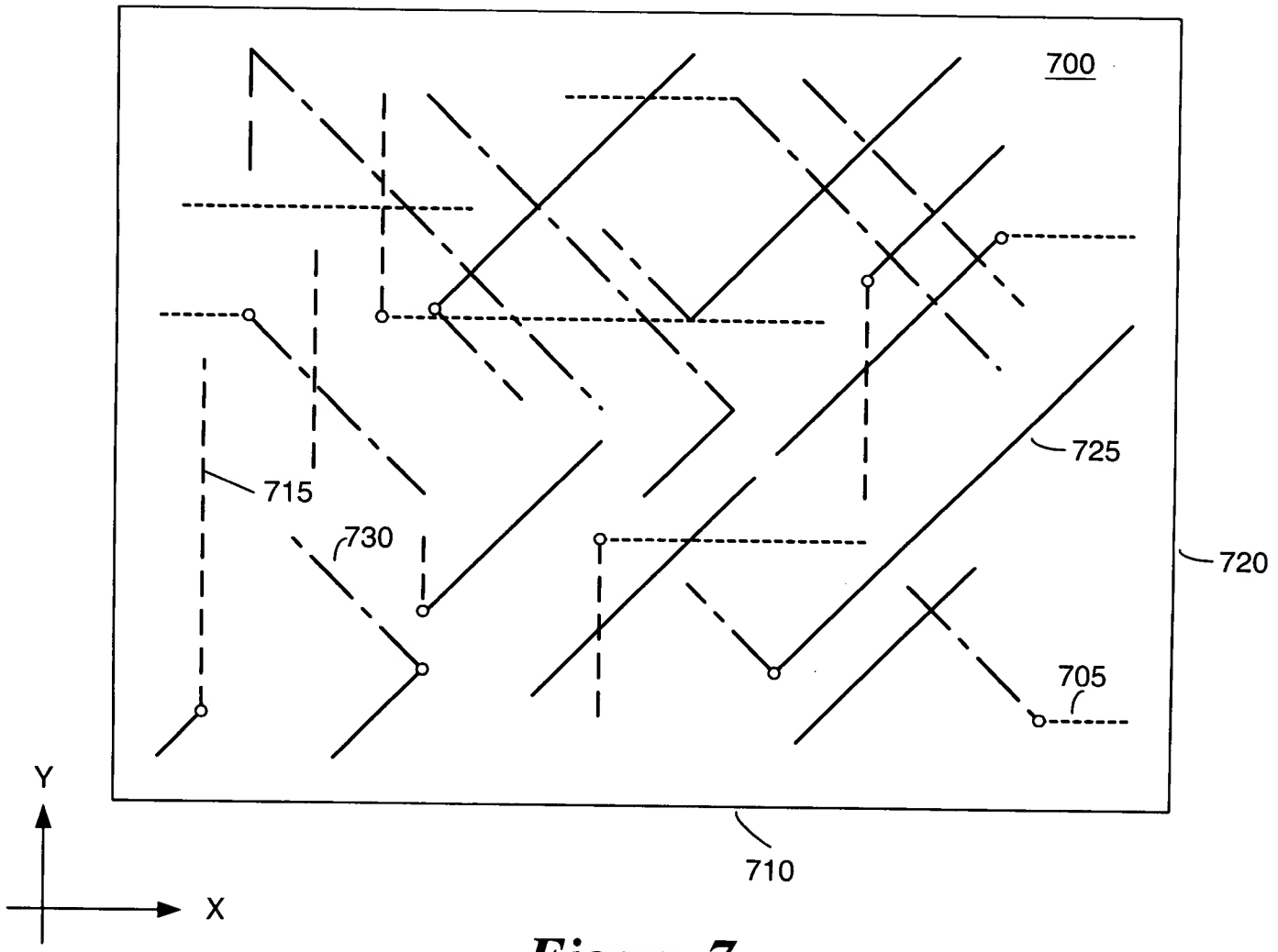

Figure 7

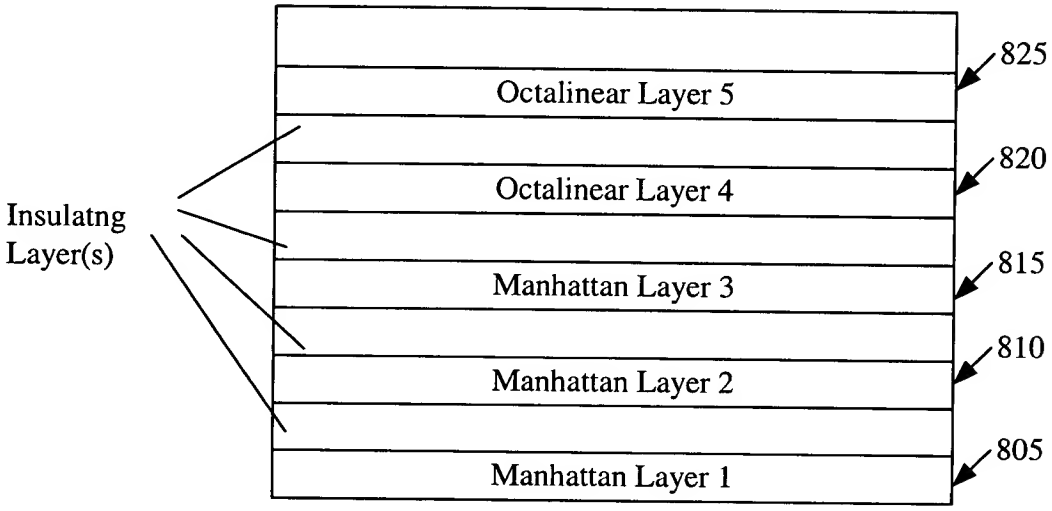
Insulatng
Layer(s)
Octalinear Layer 5
Octalinear Layer 4
Manhattan Layer 3
Manhattan Layer 2
Manhattan Layer 1
825
820
815
810
805

Figure 8

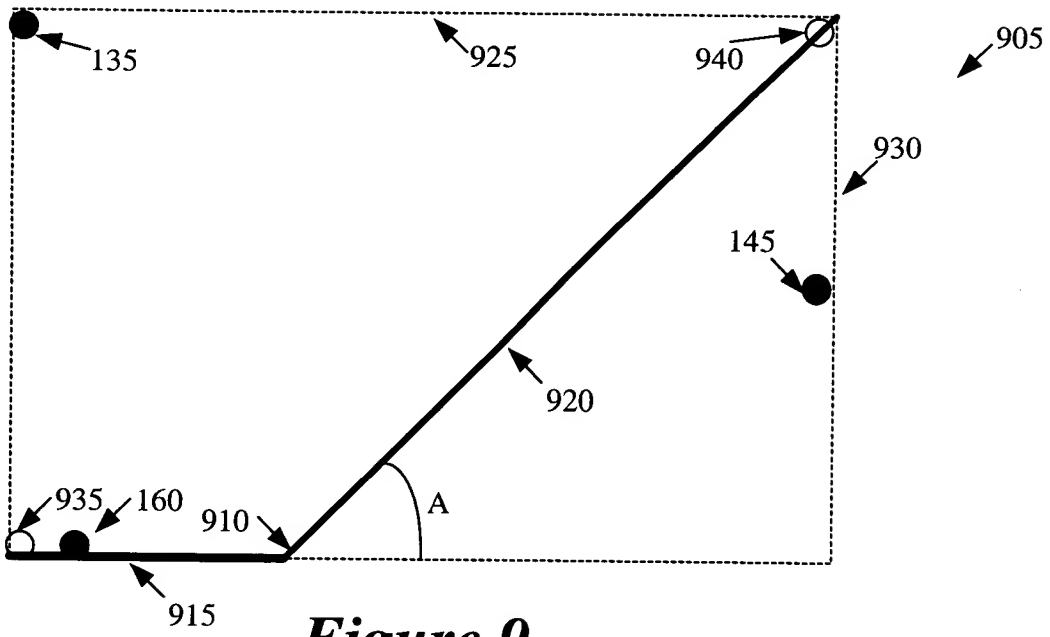

Figure 9

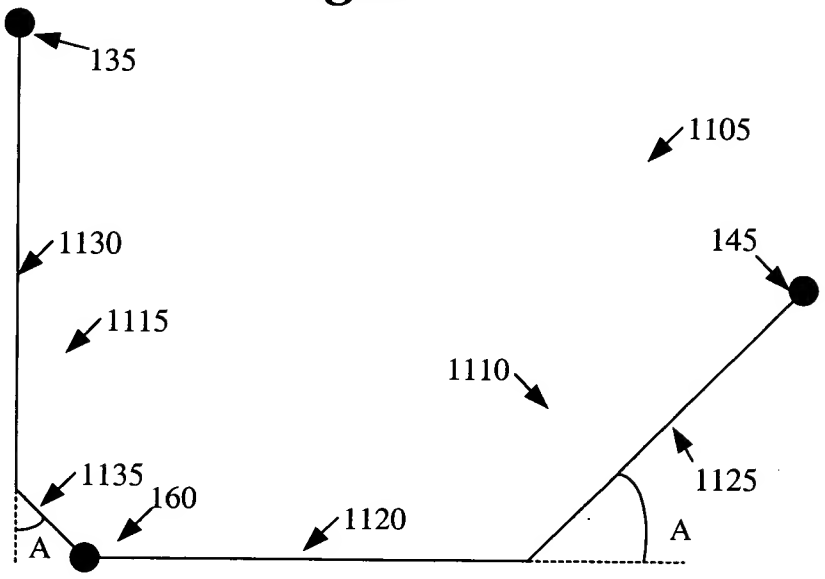

Figure 11

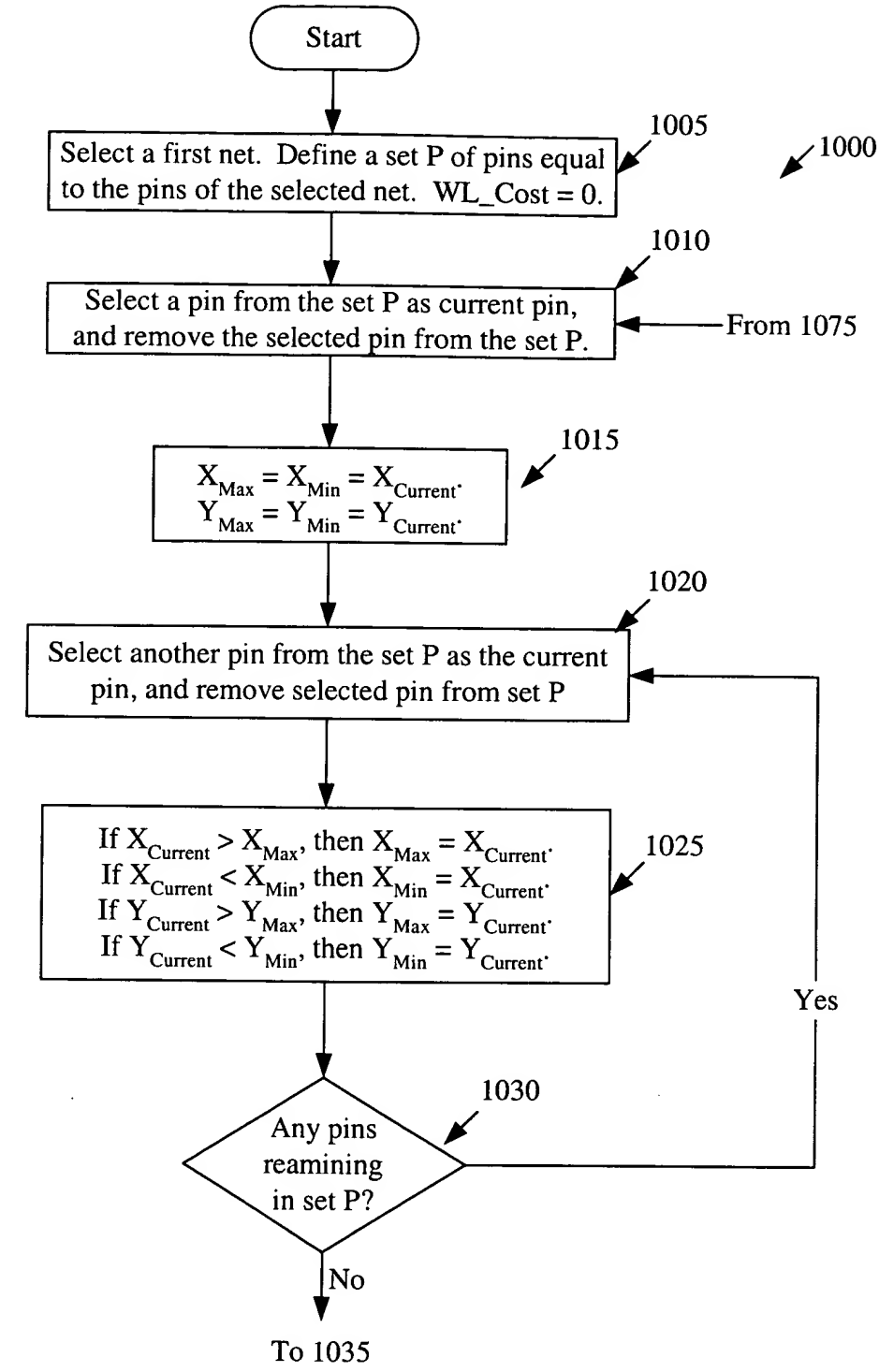

Figure 10A

Figure 10: ***Figure 10A*** / ***Figure 10B***

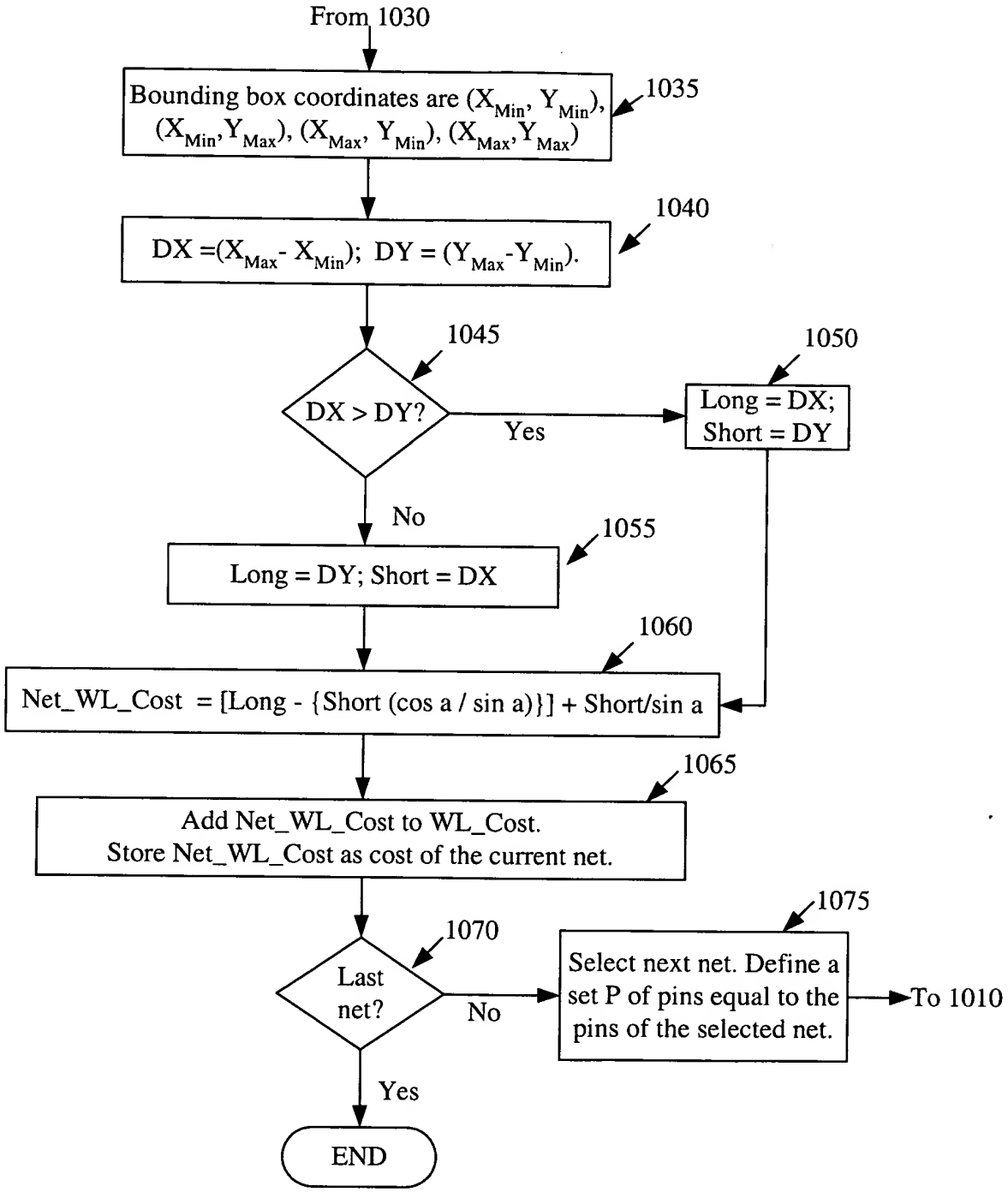
From 1030
Bounding box coordinates are (X_{Min}, Y_{Min}), (X_{Min},Y_{Max}), (X_{Max}, Y_{Min}), (X_{Max},Y_{Max})
1035
DX =(X_{Max}- X_{Min}); DY = (Y_{Max}-Y_{Min}).
1040
1045
DX > DY?
Yes
1050
Long = DX; Short = DY
No
1055
Long = DY; Short = DX
1060
Net_WL_Cost = [Long - {Short (cos a / sin a)}] + Short/sin a
1065
Add Net_WL_Cost to WL_Cost.
Store Net_WL_Cost as cost of the current net.
1070
Last net?
No
1075
Select next net. Define a set P of pins equal to the pins of the selected net.
To 1010
Yes
END

Figure 10B

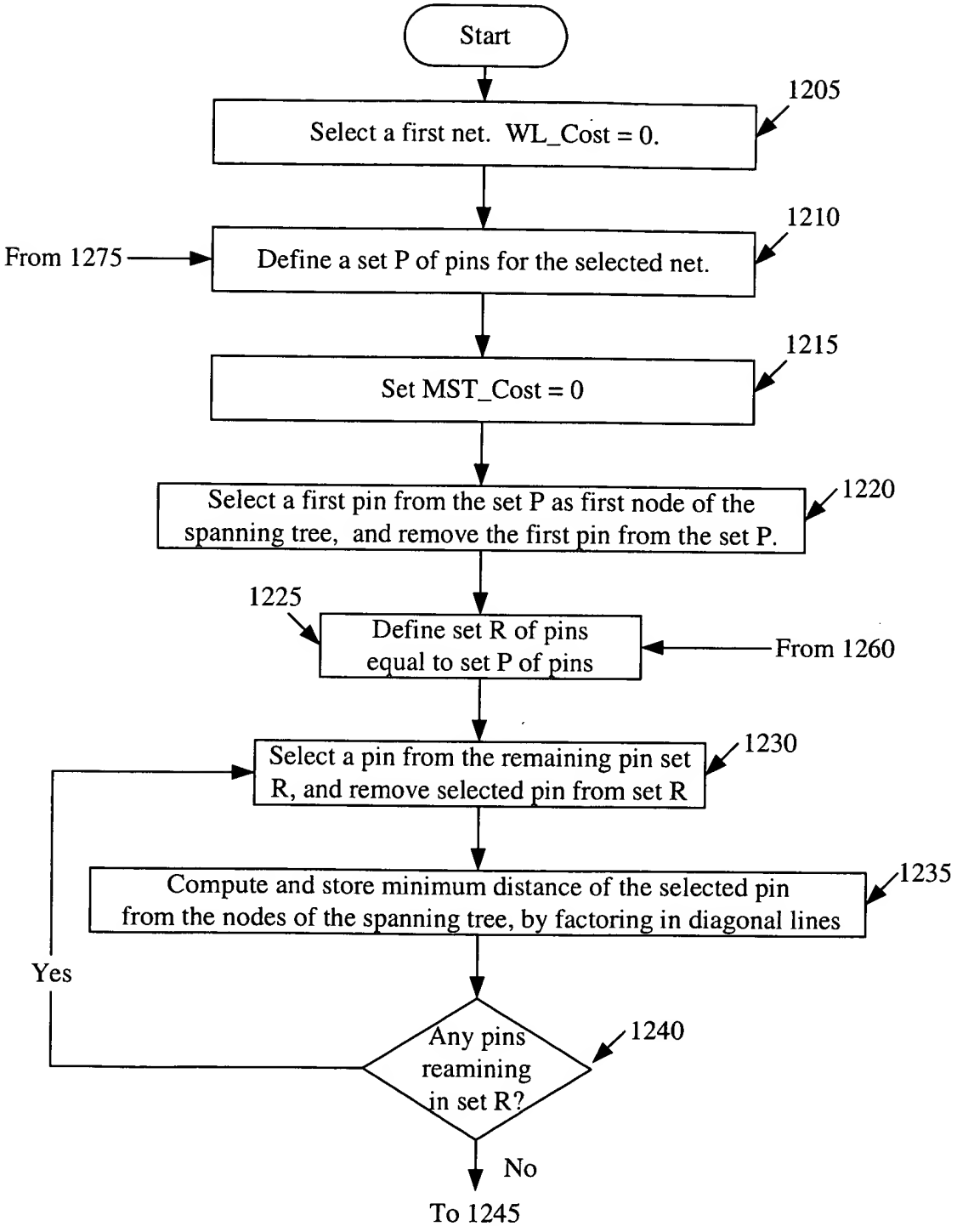

Figure 12A

Figure 12: ***Figure 12A*** / ***Figure 12B***

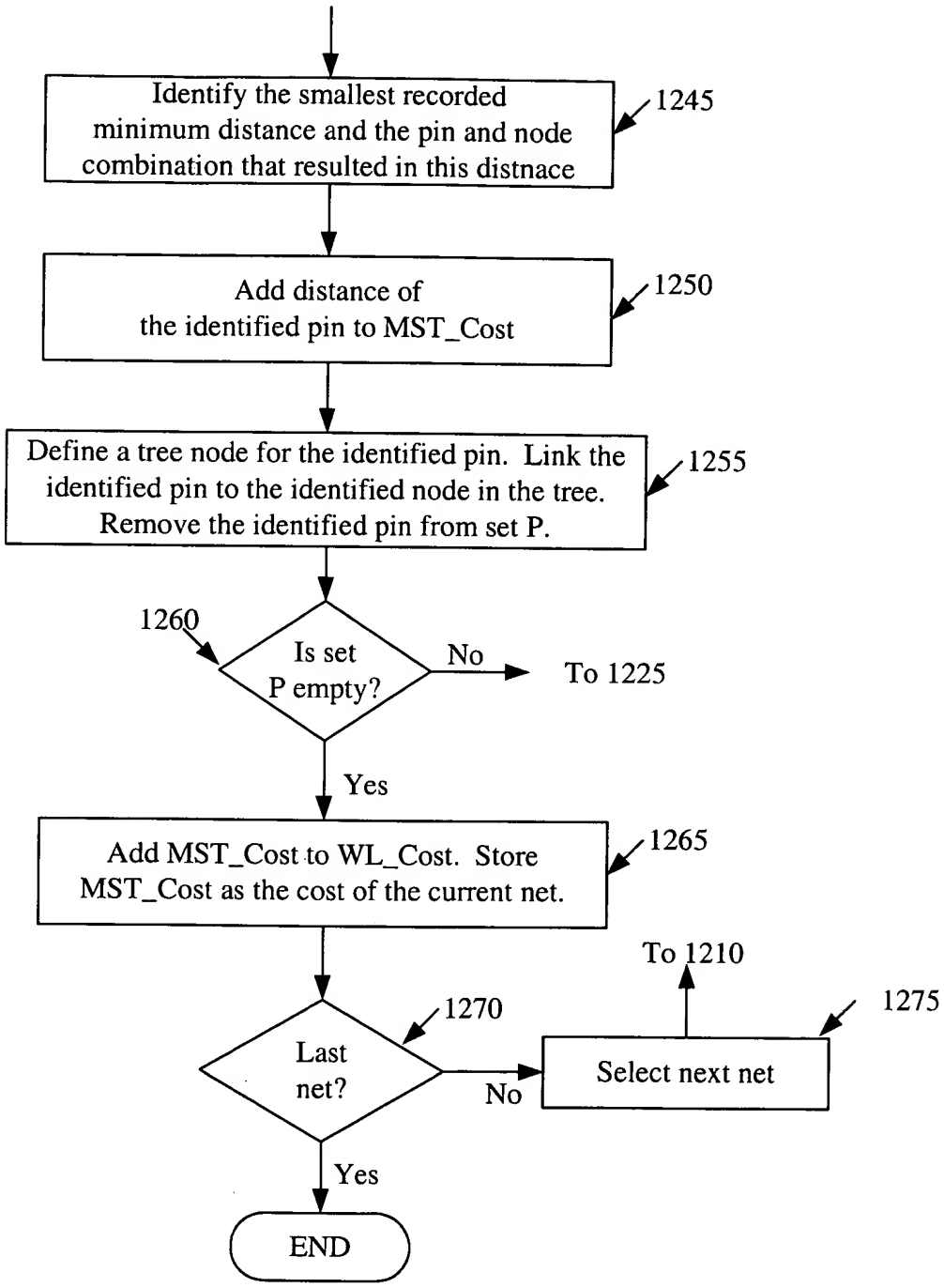
Identify the smallest recorded minimum distance and the pin and node combination that resulted in this distnace
1245
Add distance of the identified pin to MST_Cost
1250
Define a tree node for the identified pin. Link the identified pin to the identified node in the tree. Remove the identified pin from set P.
1255
1260
Is set P empty?
No
To 1225
Yes
Add MST_Cost to WL_Cost. Store MST_Cost as the cost of the current net.
1265
To 1210
1270
Last net?
No
Select next net
1275
Yes
END

Figure 12B

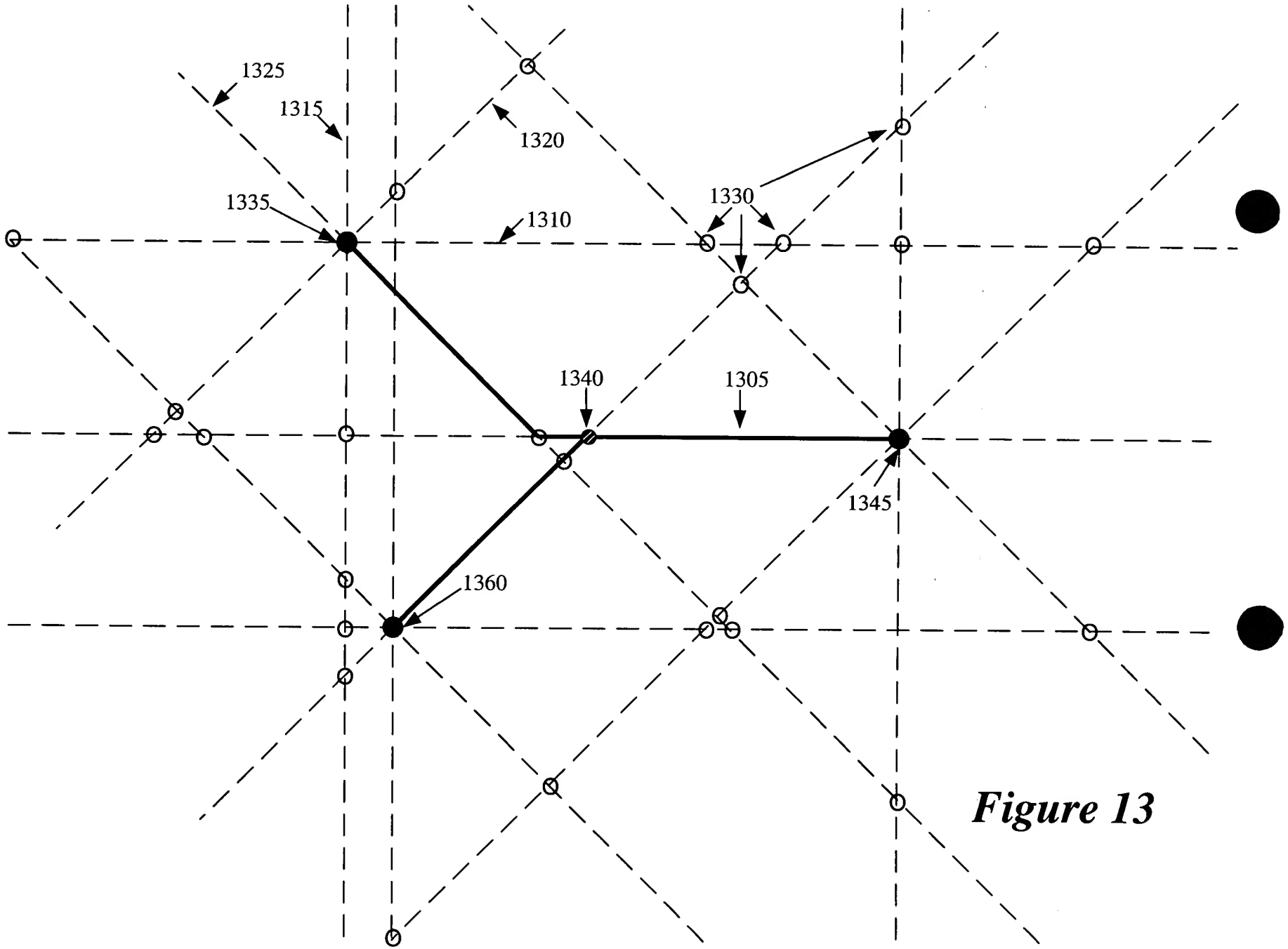

Figure 13

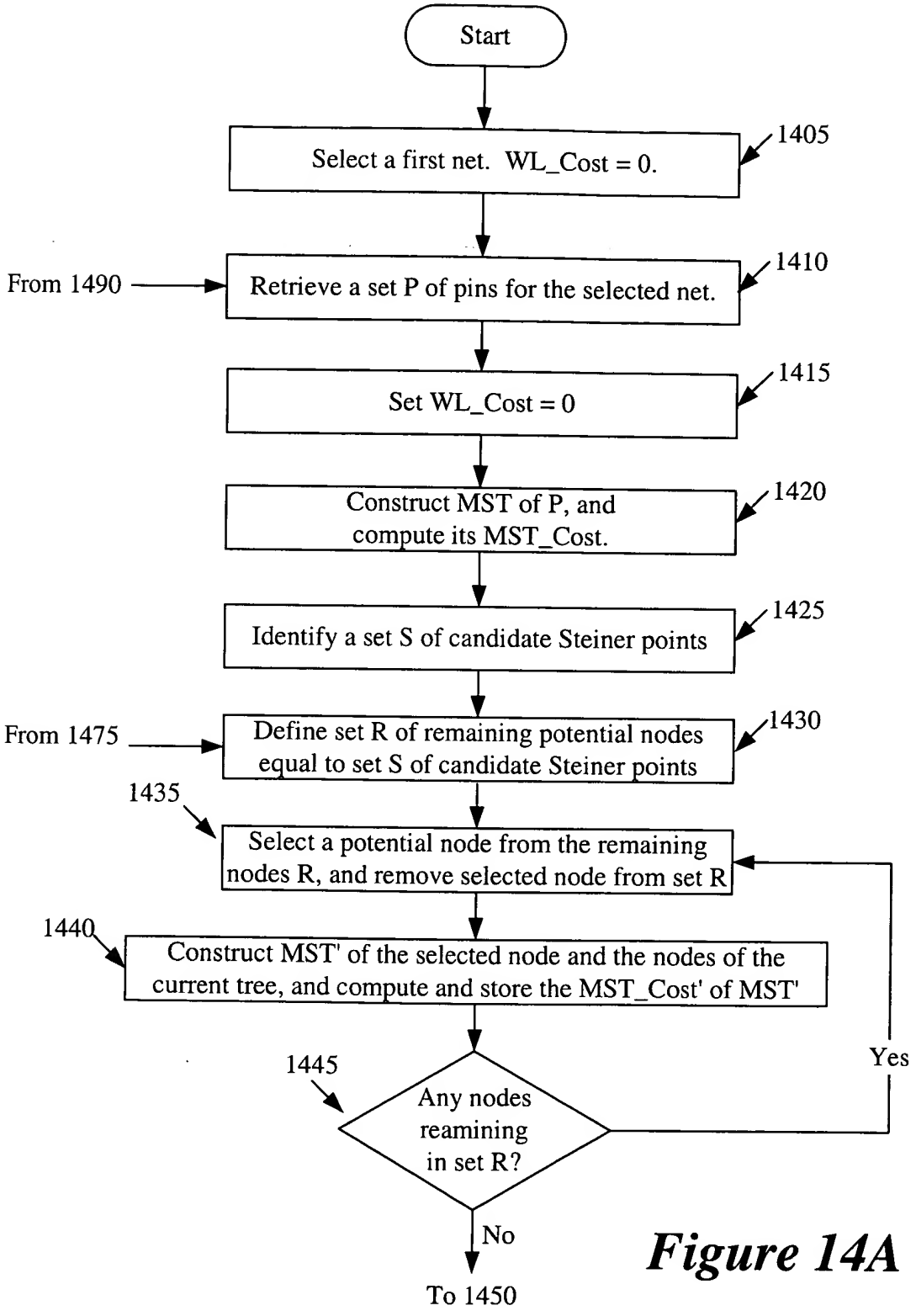

Figure 14A

Figure 14: ***Figure 14A*** / ***Figure 14B***

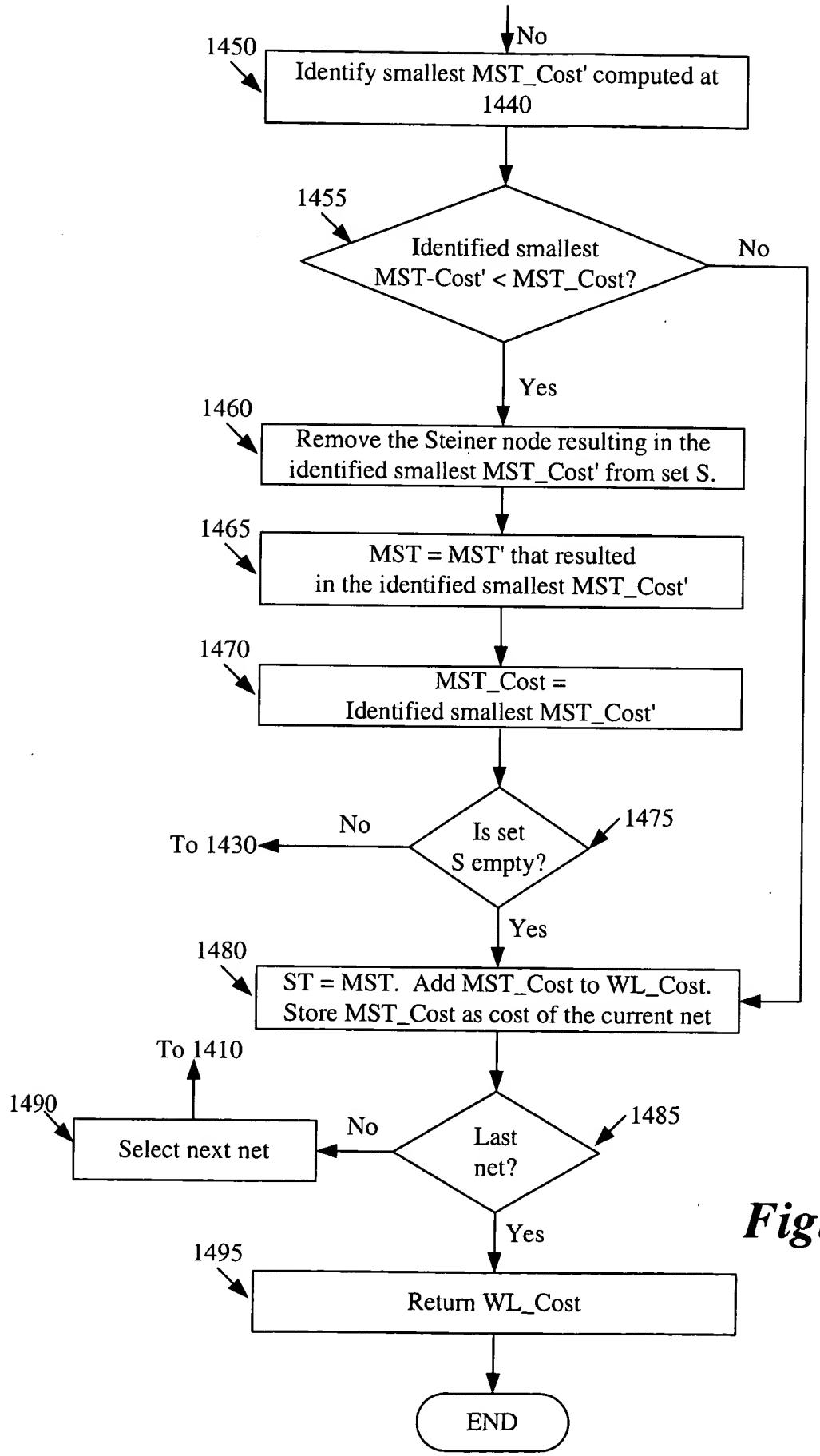
No
1450
Identify smallest MST_Cost' computed at 1440
1455
Identified smallest MST-Cost' < MST_Cost?
No
Yes
1460
Remove the Steiner node resulting in the identified smallest MST_Cost' from set S.
1465
MST = MST' that resulted in the identified smallest MST_Cost'
1470
MST_Cost = Identified smallest MST_Cost'
No
To 1430
Is set S empty?
1475
Yes
1480
ST = MST. Add MST_Cost to WL_Cost. Store MST_Cost as cost of the current net
To 1410
1490
Select next net
No
Last net?
1485
Yes
1495
Return WL_Cost
END

Figure 14B

TDH050" SH2E260

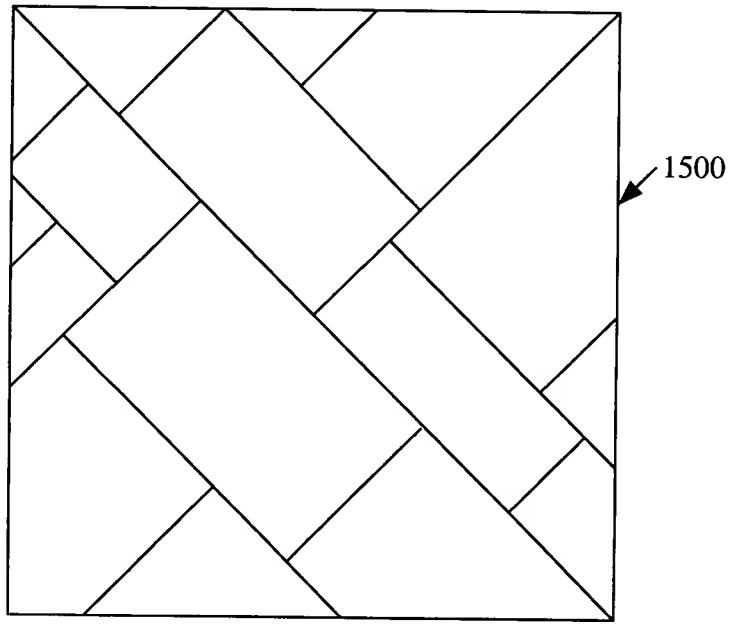

Figure 15

Figure 17

Figure 16

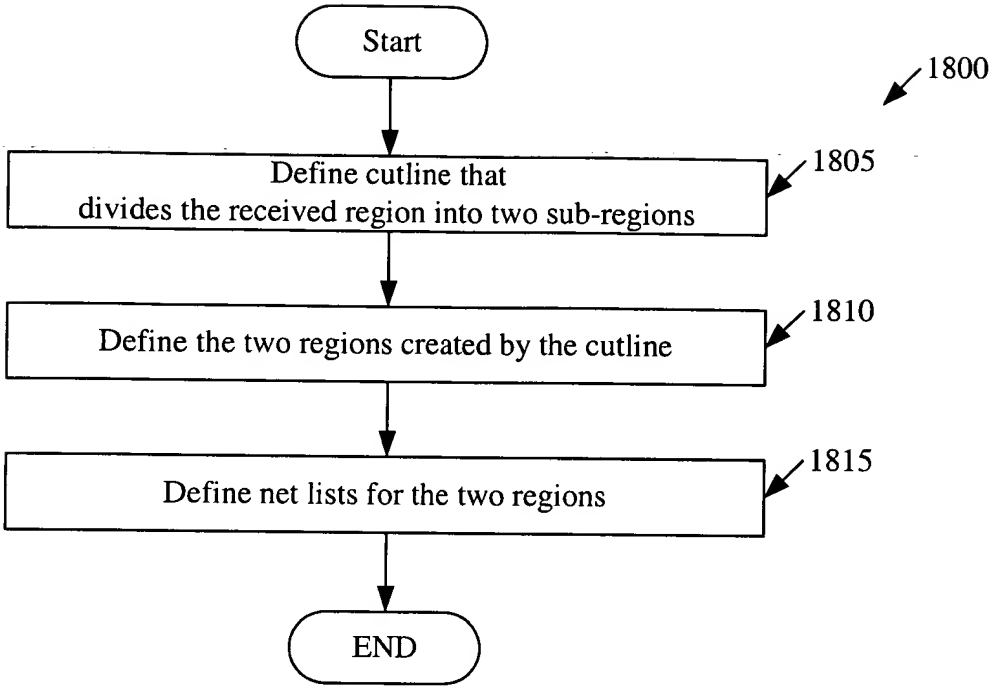
Start
1800
Define cutline that
divides the received region into two sub-regions
1805
Define the two regions created by the cutline
1810
Define net lists for the two regions
1815
END

Figure 18

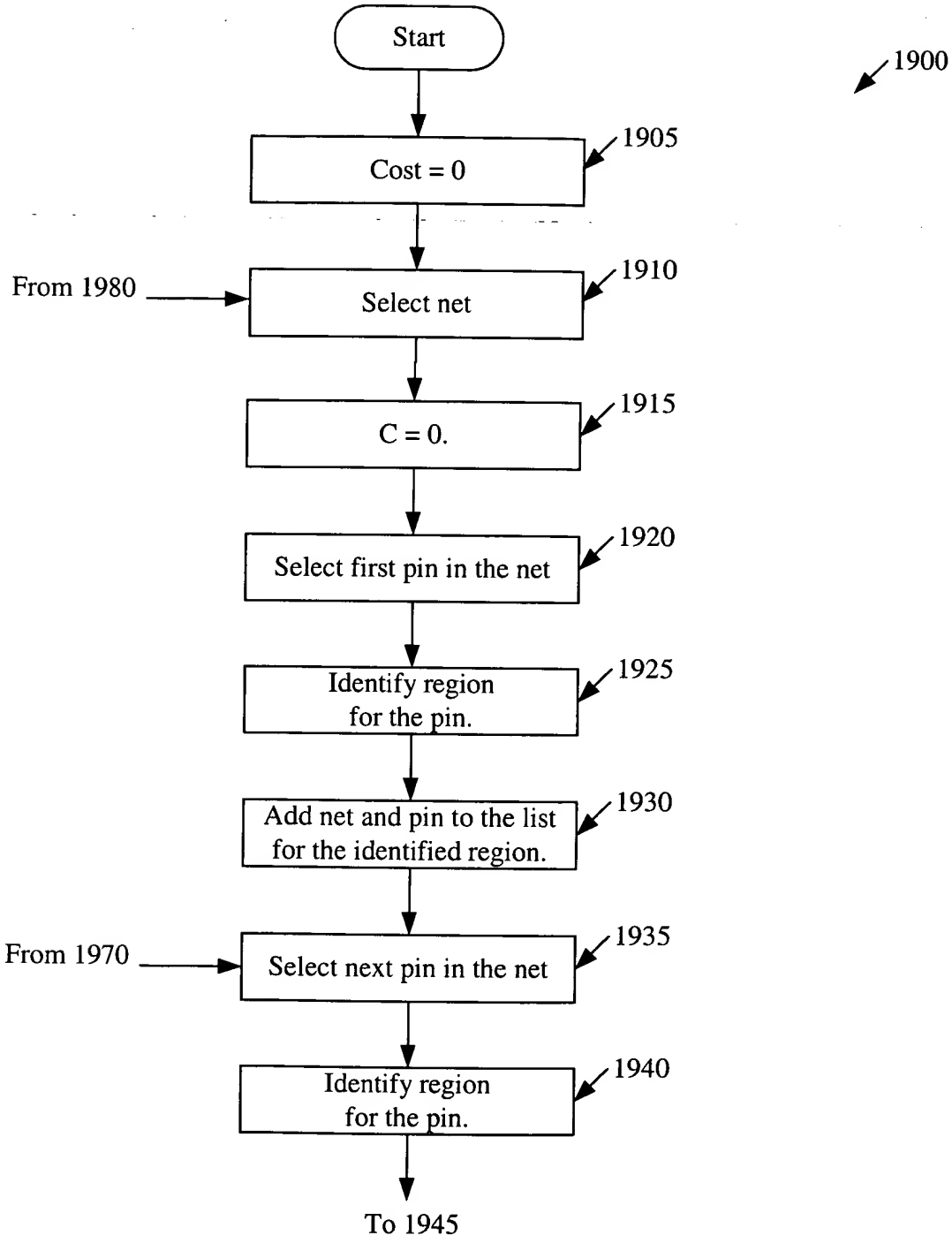

Figure 19A

Figure 19: ***Figure 19A*** / ***Figure 19B***

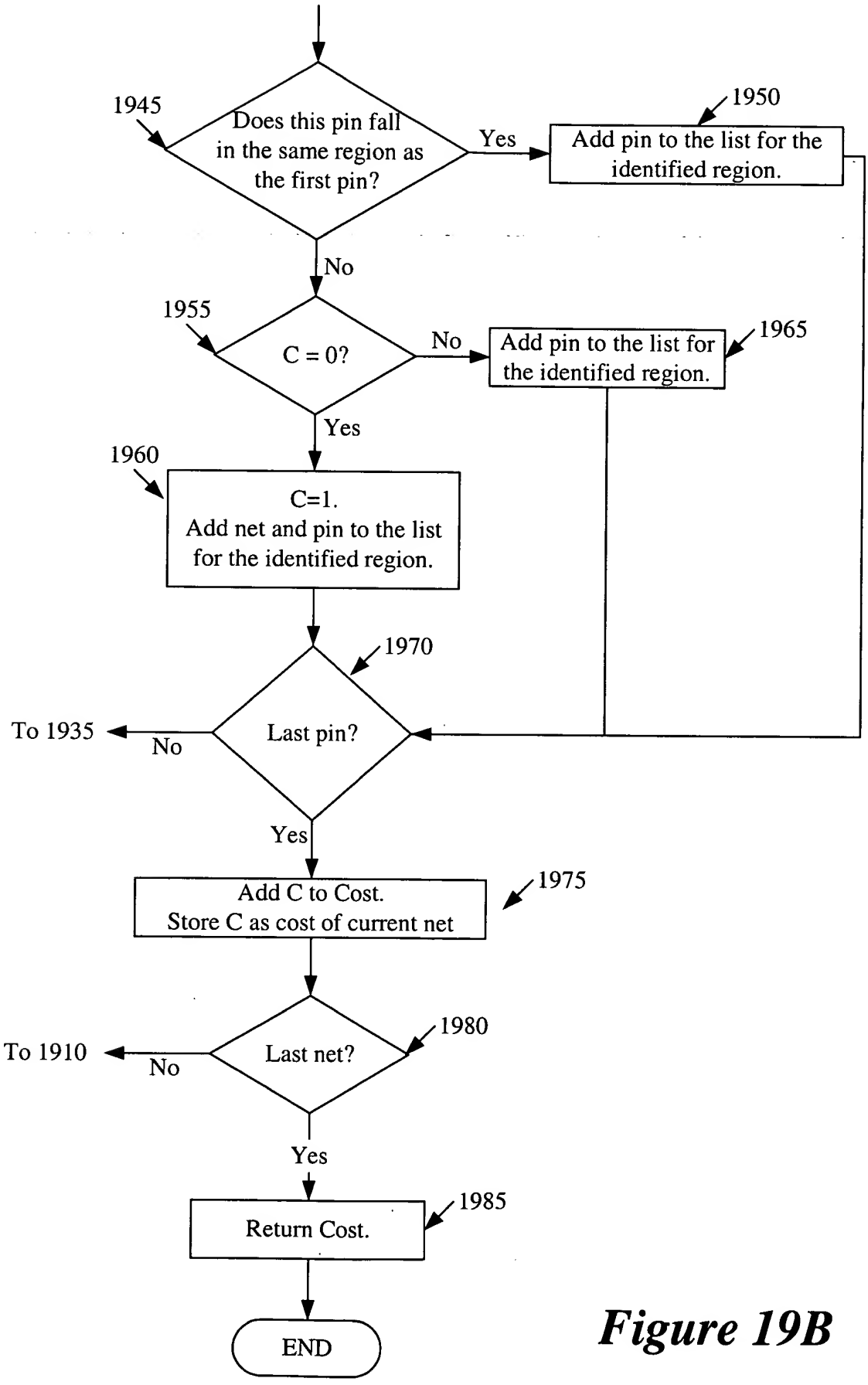
1945
Does this pin fall in the same region as the first pin?
Yes
1950
Add pin to the list for the identified region.
No
1955
C = 0?
No
Add pin to the list for the identified region.
1965
Yes
1960
C=1.
Add net and pin to the list for the identified region.
1970
To 1935
No
Last pin?
Yes
Add C to Cost.
Store C as cost of current net
1975
To 1910
No
Last net?
1980
Yes
Return Cost.
1985
END

Figure 19B

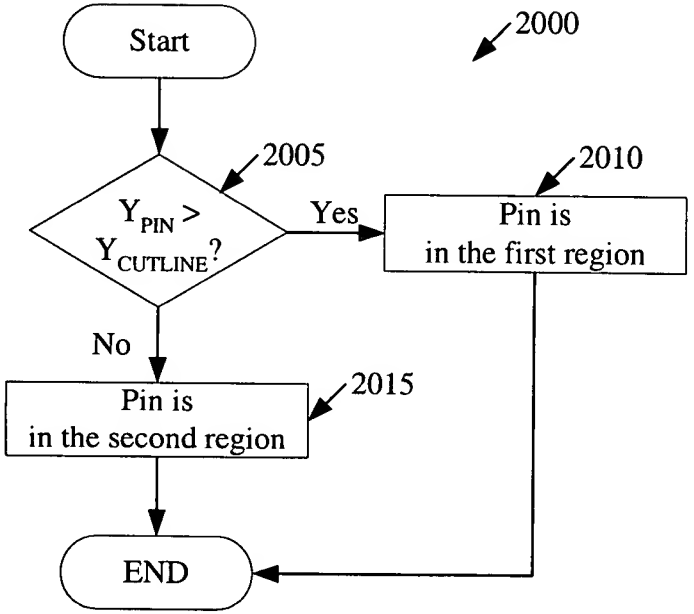

Figure 20

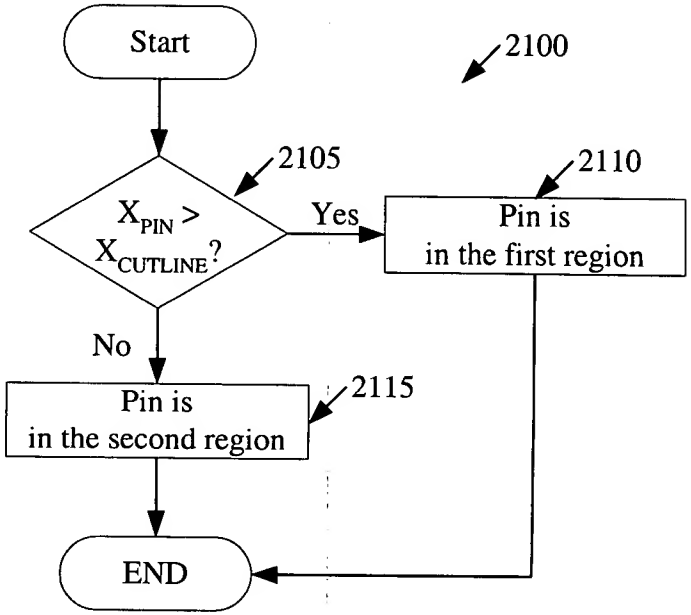

Figure 21

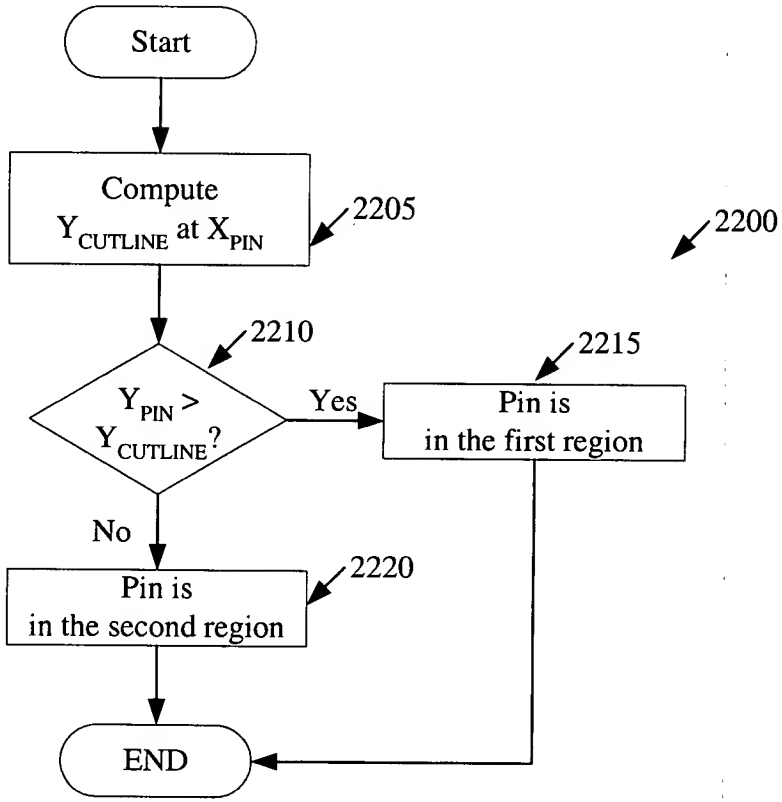
Start
Compute
$Y_{CUTLINE}$ at X_{PIN}
2205
2200
2210
2215
Y_{PIN} >
$Y_{CUTLINE}$?
Yes
Pin is
in the first region
No
Pin is
in the second region
2220
END

Figure 22

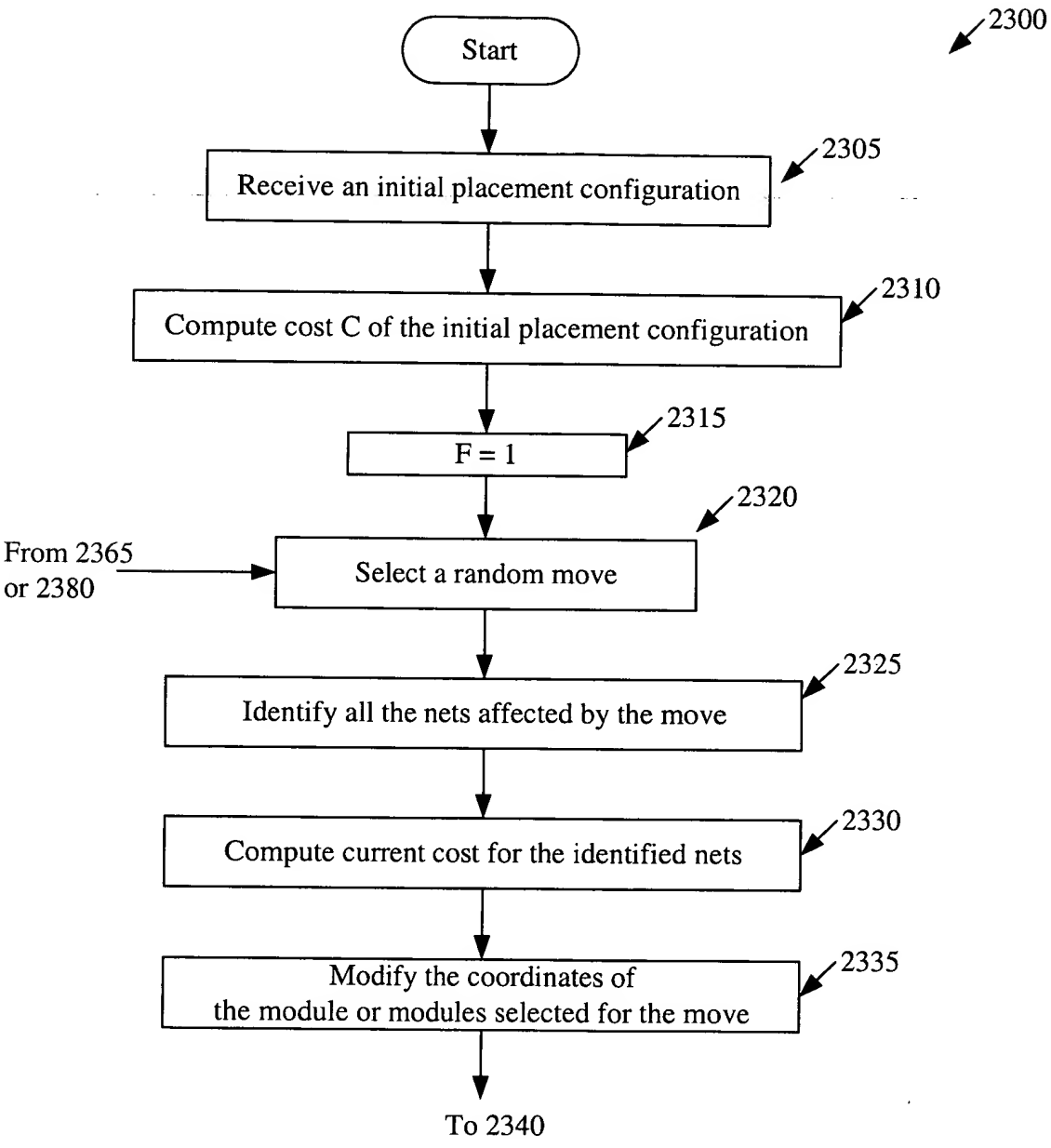

Figure 23A

Figure 23: ***Figure 23A*** / ***Figure 23B***

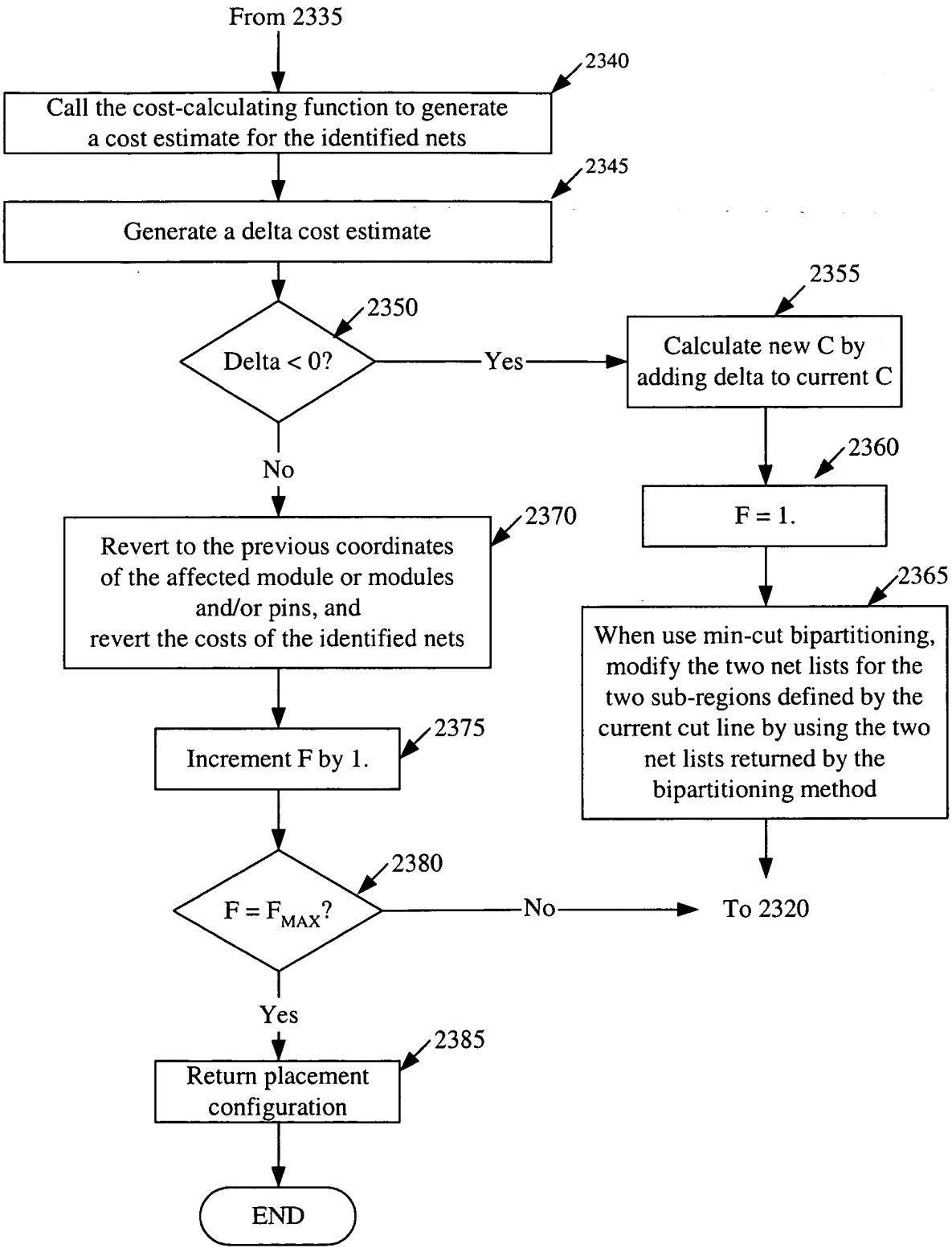
From 2335
2340
Call the cost-calculating function to generate a cost estimate for the identified nets
2345
Generate a delta cost estimate
2350
Delta < 0?
Yes
2355
Calculate new C by adding delta to current C
No
2360
F = 1.
2370
Revert to the previous coordinates of the affected module or modules and/or pins, and revert the costs of the identified nets
2365
When use min-cut bipartitioning, modify the two net lists for the two sub-regions defined by the current cut line by using the two net lists returned by the bipartitioning method
2375
Increment F by 1.
2380
F = F_MAX?
No
To 2320
Yes
2385
Return placement configuration
END

Figure 23B

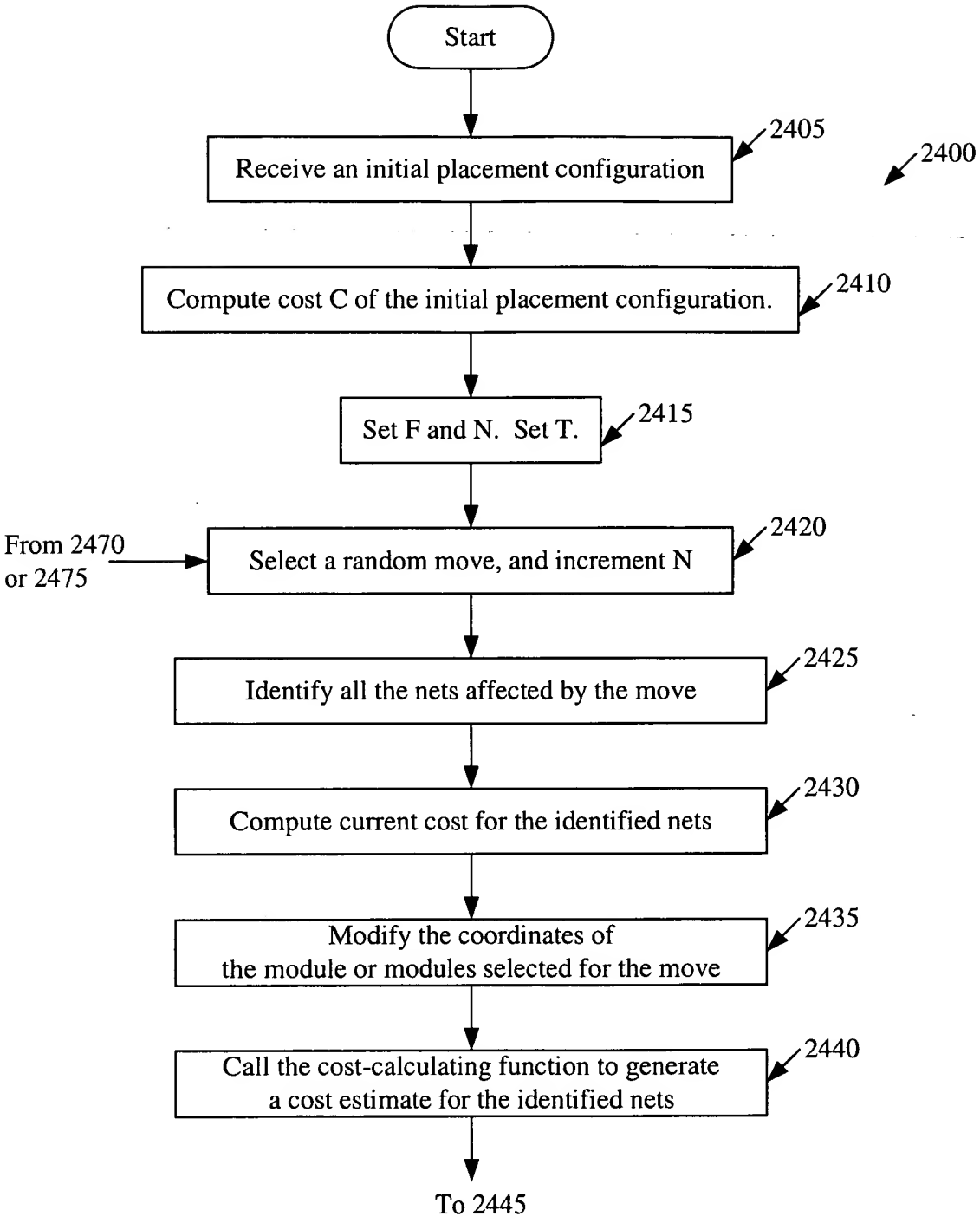

Figure 24A

Figure 24: Figure 24A / Figure 24B

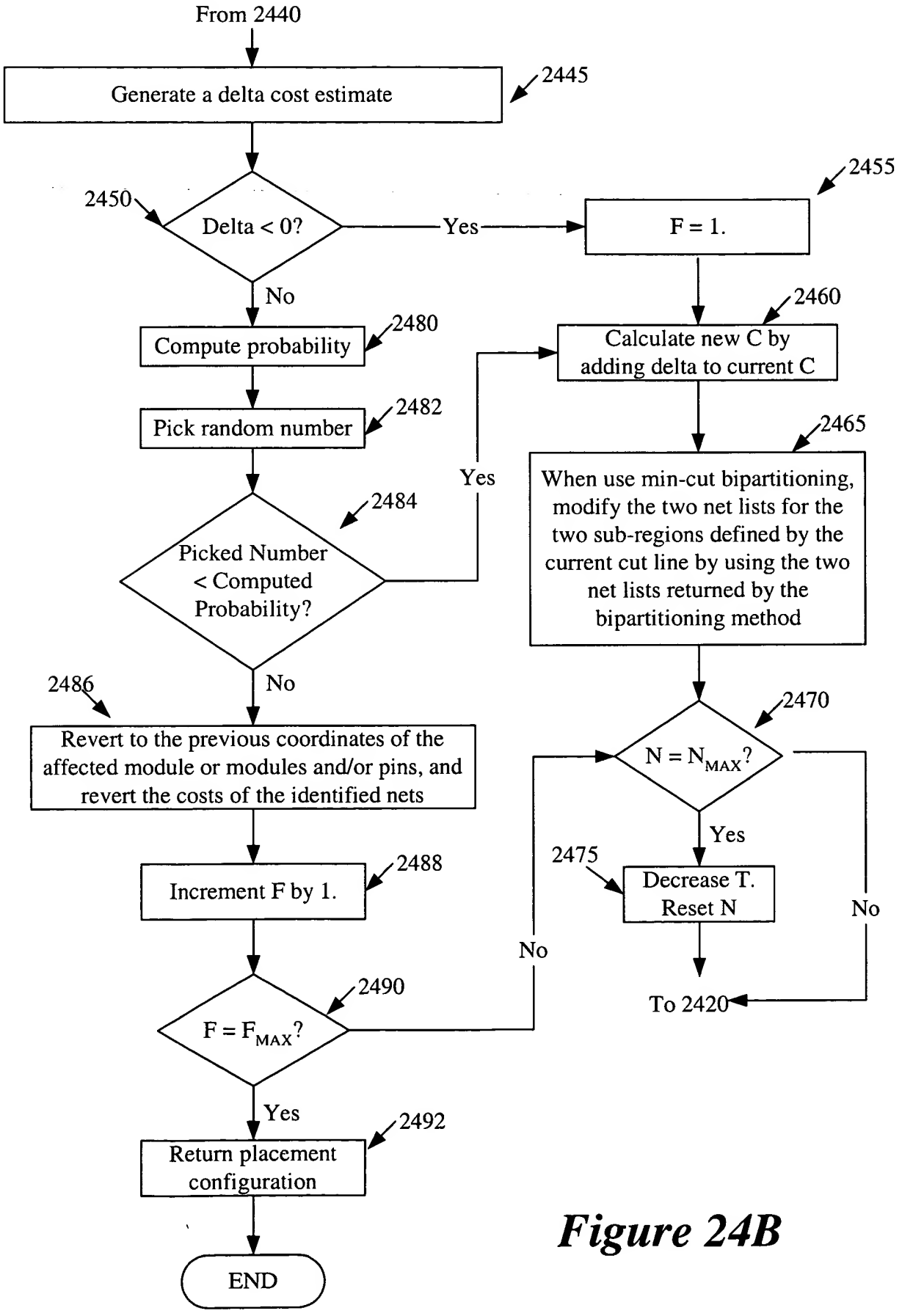
From 2440
Generate a delta cost estimate
2445
2450
Delta < 0?
Yes
2455
F = 1.
No
2460
Calculate new C by adding delta to current C
2480
Compute probability
2482
Pick random number
2465
When use min-cut bipartitioning, modify the two net lists for the two sub-regions defined by the current cut line by using the two net lists returned by the bipartitioning method
2484
Picked Number < Computed Probability?
Yes
No
2486
Revert to the previous coordinates of the affected module or modules and/or pins, and revert the costs of the identified nets
2470
N = N_MAX?
Yes
2475
Decrease T. Reset N
No
To 2420
2488
Increment F by 1.
No
2490
F = F_MAX?
Yes
2492
Return placement configuration
END

Figure 24B

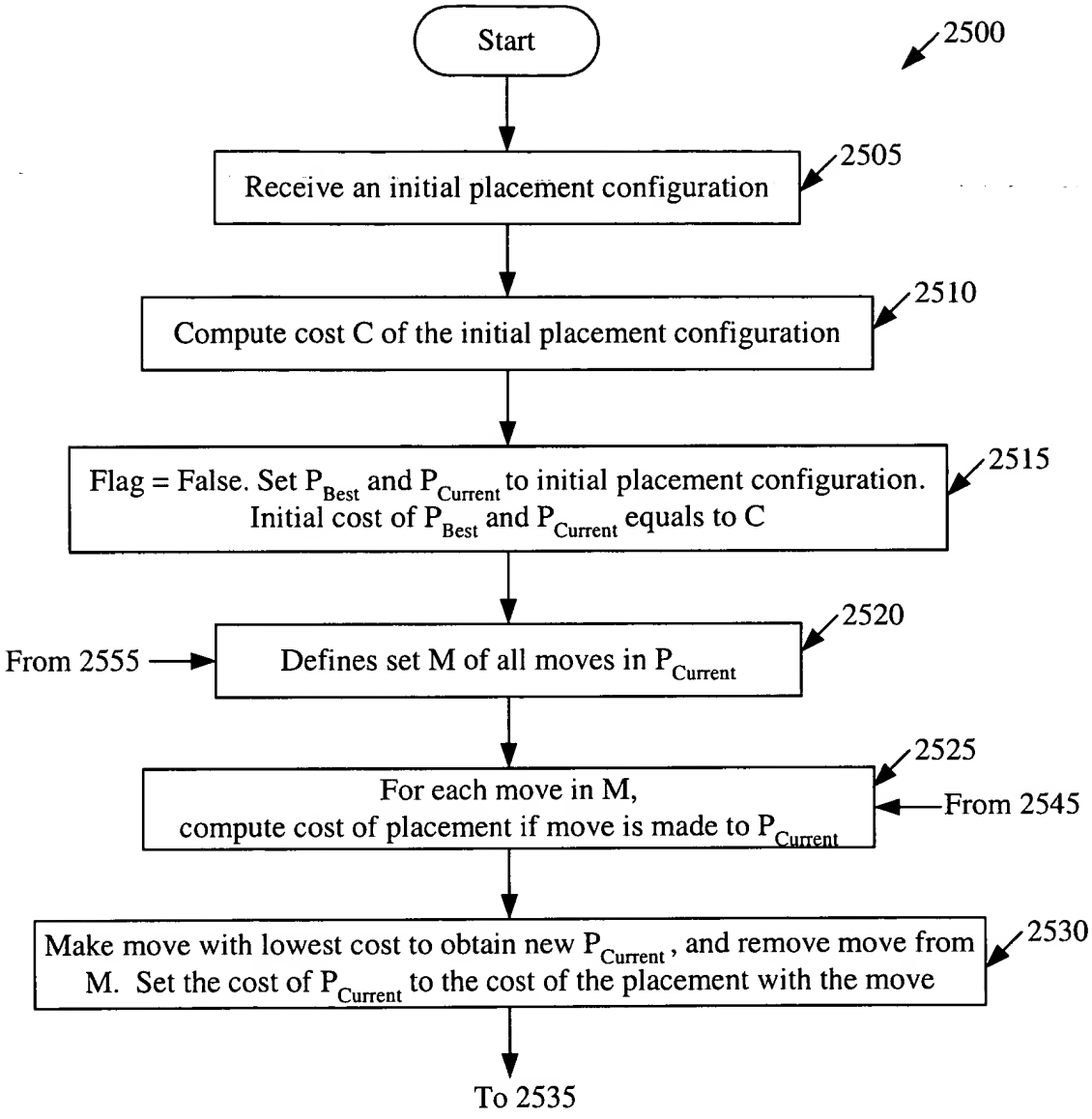

Figure 25A

Figure 25: Figure 25A / Figure 25B

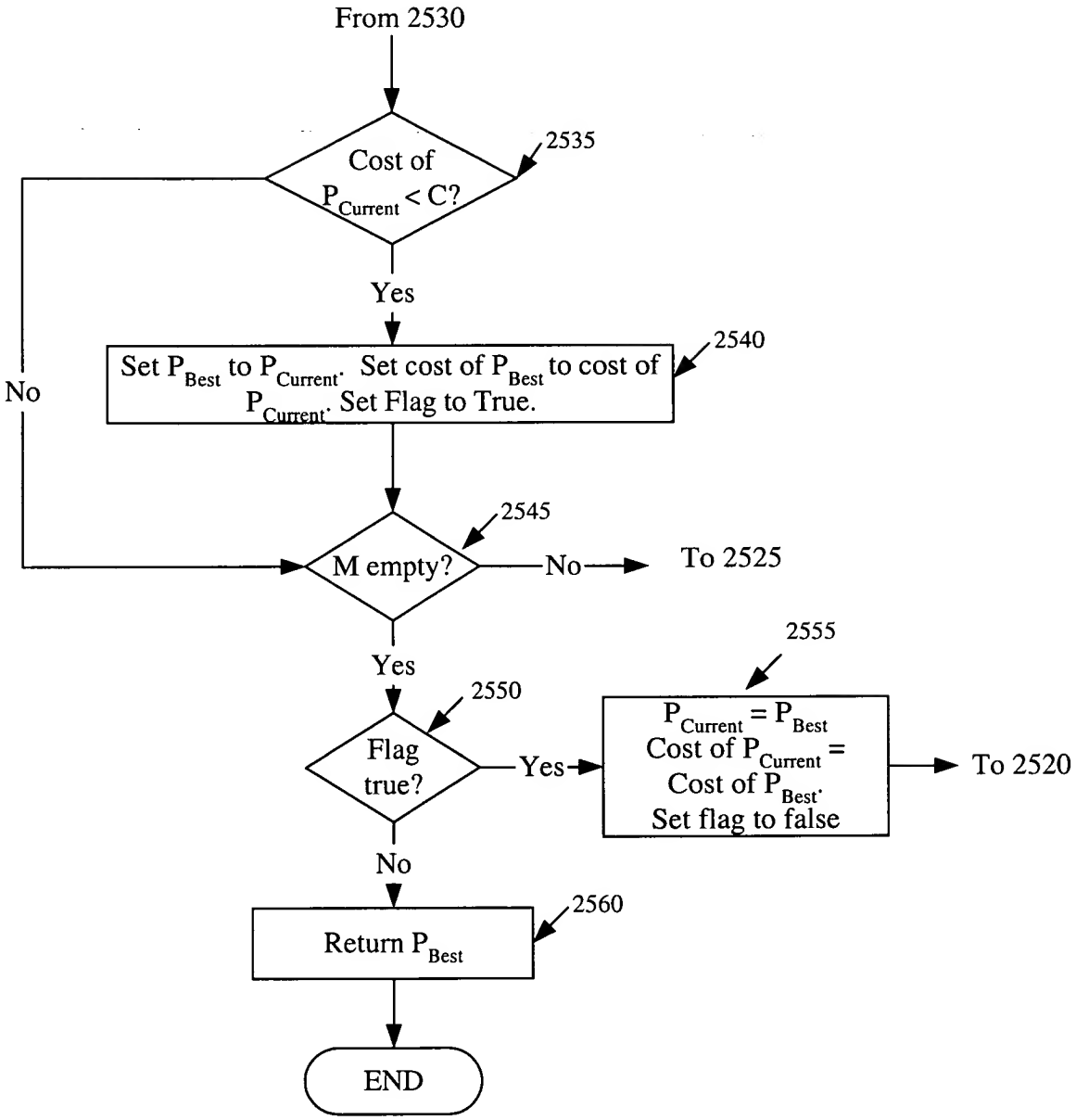
From 2530
Cost of $P_{Current} < C$?
2535
Yes
No
Set P_{Best} to $P_{Current}$. Set cost of P_{Best} to cost of $P_{Current}$. Set Flag to True.
2540
M empty?
2545
No
To 2525
Yes
Flag true?
2550
Yes
$P_{Current} = P_{Best}$ Cost of $P_{Current}$ = Cost of P_{Best}. Set flag to false
2555
To 2520
No
Return P_{Best}
2560
END

Figure 25B

TOMOSO" SM2E260

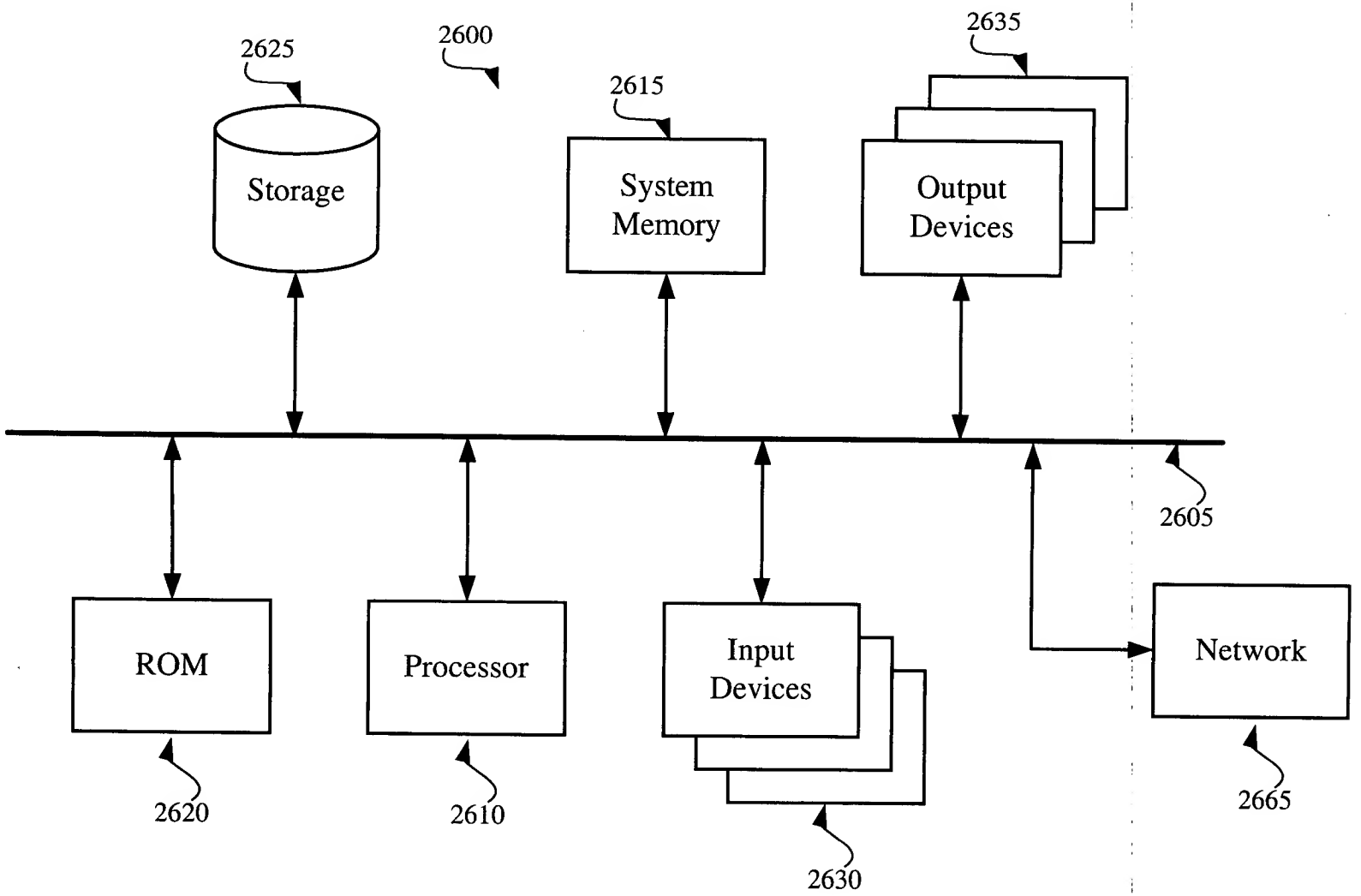

Figure 26